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Quarterly Report II
(January 2012- March 2012)

AGRICULTURE TECHNOLOGY PROGRAM IN TURKMENISTAN



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By: Weidemann Associates, Inc.
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PROJECT OVERVIEW

This is the second quarter report of Year 2 progress for the USAID Agriculture Technology Program in Turkmenistan (AgTech), covering activities from January 1 through March 31, 2012.



AgTech began the second quarter with the continuation of delivering and distributing artificial insemination supplies for the second generation of Artificial Insemination (AI) training activities, redesigning and improving of horticultural training modules and activities, improving and constructing greenhouses, crafting an enabling environment for conducting feed demonstrations, and monitoring the birth of the calves in Turkmenistan originating from project procured Holstein and Brown Swiss bull semen.

The program continues to tailor the training curriculum to the demands of the participating farmers and future AI practitioners, while simultaneously targeting the Program's main objectives. Additionally, the project is preparing to develop multimedia that uses Turkmen farmers as the centerpiece to advertise new practices in artificial insemination.

The activities of the second quarter of the second project year continued to build on accomplishments from the first year and Q1 of Year 2, including additional procurement of AI equipment, mastitis test kits and soil test kits for continued velayat trainings. Central to the strategy for sustainability is linking the actors of the value chain: the farmers, the input providers, the processors, local market buyers and exporters. With the given high demand for the products that the project is supporting (e.g., milk, cucumbers, tomatoes), we are taking steps to help investing partners understand where they can get the most return on their investment. AgTech's second year is full of activities designed to ride the momentum of the first year to create a foundation for sustainable development throughout the remainder of the project.

As of March 31, the Ag Tech project has estimated that \$1,374,657.32 has been spent of the obligated funds of \$2,064,076.

PROJECT ACTIVITIES AND OBJECTIVES

In Q2 of Year 2, the project has focused on artificial insemination training activities for the livestock sector and soil testing seminars for the horticulture sector. Cows continue to be born almost daily and the project has contributed support that has led to the construction and/or renovation of 140 greenhouses. These are the short-term goals that the project is reaching to achieve future increases in Turkmen farmer production and income – the ultimate project objectives.

As of March 31, 2011, 76 healthy calves have been born – 43 Holstein and 33 Brown Swiss. The gender breakdown of the calves is 54% male and 46% female. The superior bred Holstein and Brown Swiss calves are a prized commodity among beneficiary farmers. An approximate 65-75% success rate took place in Year 1, but losses due to stillborn, disease and livestock sales of pregnant cows has reduced the final number of healthy calves born thus far.

Following the AI TOT last spring, the project's lead artificial insemination specialist, Ms. Katya Chichnayeva, worked with the excess doses of semen to support local small holder farmers and an additional 253 calves should be born in Q3 of this year. She is also working with our lead Agriculture Extension Specialist, Mr. Akmyrat Yazhanov, to ensure that the farmers raising these calves receive significant knowledge and training on best practices in herd management, feed quality and animal hygiene. Also, 180 doses of semen were used last year in Mary and the calving results will be available next quarter.

Following successful seminars in greenhouse renovations, AgTech activities have led to 140 renovated and constructed greenhouses. Q2 of the second year focused on greenhouse construction training for Balkan and Dashoguz at the project's newly constructed greenhouses. Meanwhile, in the other three velayats trainings continued to introduce soil testing. The project has identified key lead farmers who can act as extension agents for soil testing. By understanding the nutrient content in the soil of their greenhouses, the project's local consultants can accurately identify what type and how much fertilizer is needed for optimal greenhouse soil. This was particularly useful given the timing of the planting season (Jan-Feb) for the spring 2012 harvest. Key results and figures will be available in Q3, at which point the project should be close to its 2nd year goals in production and income generation for the horticulture component.

Next Step:

Ensure that all 2nd generation trainees are capable of working independently as AI practitioners.

Outfit all trained professional with the minimum AI equipment to serve their farming communities.

"I started as a trainee last year, and now I am working to help others learn AI in our country. Teaching these new guys is making me a more skilled professional as well. Our confidence grows as we gain more experience."

-Annageldy Sariyev, Ahal, Ak Buday Etrap

BREEDING IMPROVEMENT

The 11 technicians trained by the project in Artificial Insemination (AI) techniques and procedures have identified three to five new technicians in their respective districts to provide Turkmenistan with a corps of AI technicians capable to serve the demands of farmers for improved breeds of cattle. Ms. Chichnayeva, the project's local veterinarian and breeding specialist, has been working with the trainers sporadically as needed to provide support in the 2nd generation trainings. At the conclusion of the trainings, she will verify and certify new AI trainees in all five velayats. Final results are expected in Q3.



To support Turkmenistan's newest AI technicians, the project has distributed 11L Dewar Flasks imported last quarter to each local trainer (11 in total). This equips the new trainers with mobile units for inseminating cows in remote areas. The new and future AI Centers in Turkmenistan will use the extra units (nine) as mobile equipment that can be shared among regional practitioners.

As of March 31, 76 calves from the first AI TOT have been born. The remaining 253 pregnant cows in Ahal are expected to give birth in Q3. Of the 520 doses used in Ahal, 373 cows became pregnant. The success rate for healthy calving is 86.4%. Although not all births were successful, there are many contributing factors to calf mortality (i.e., feed, weather, veterinary care and attention, breed issues, etc.). Because the project used larger farms in the AI TOT last year, several cows have been sold or are otherwise untraceable. Nevertheless, the project can safely say that about 70% of the AI TOT inseminations were successful, and with practice and experience their success rates should continue to improve to the industry standard of 90%, assuming the cows are healthy.



The 2nd generation AI trainings began at the end of December 2011 and continue through this quarter. It is expected that a total of 40-45 additional practitioners will be trained by the 1st generation AI TOT participants in their respective velayats and etraps (districts). One of the challenges remains licensing for these professionals to safely import bull semen and to sell their services for money. Because the project is seeking a sustainable AI workforce, the 2nd generation trainings are requiring participating farmers to pay a negotiated rate between 20-40 Turkmen manat to support the costs of material, transport and labor for the inseminations on their farms.

Table of 2nd Generation AI Velayat Training Bull Semen Distribution

Name	Velayat, Etrap	Swiss (doses)	Holst (doses)	Gloves (units)
Amangeldi Yazhanov	Mary, Tagta-Bazar	120	30	180
Yakup Chariyev	Mary, Yoloten	120	30	N/A
Amandurdy Hommadov	Mary, Murgap	120	30	166
Annageldy Sariyev	Ahal, Ak Buday	100	50	160
Myratgeldi Hojaberdiyev	Ahal, Gokdepe	120	30	160
Yolaman Shaberdiyev	Ahal, Babadayhan	120	30	180
Murat Nurmatov	Dashoguz, Niyazov	120	30	160
Yusupbay Ahmedov	Dashoguz, Niyazov	120	30	160
Bahrambay Rozmetov	Dashoguz, Niyazov	120	30	160
Gurbanmurat Nurmamedov	Lebap, Sayat	120	30	160
Nurmyrat Yoldashev	Lebap, Garashsyzyk	120	30	160
Annaberdy Ashyrmyradov*	Ahal, Gokdepe	N/A	N/A	N/A
Total Distributed:		1300	350	1646
Remaining in Storage:		290	340	2354**

*Awaiting decision on whether or not he will serve in the Turkmen military.

**An additional 2000 gloves were procured in March 2012

The project has recognized the need for various media to help alleviate farmer concerns about the artificial insemination process and the quality of the new cows. To this end, AgTech developed a simple picture booklet of the first new calves for each trainer to illustrate the quality of the new breed of calves and how well they look even when using mixed breeding with the local variety.

Challenge: The farmers are being evaluated for their techniques and accuracy in conducting AI trainings and instructing farmers on best practices. Most trainers are doing very well thus far; however, the trainers in Lebap need more instruction to proceed at a level of acceptable quality. Q3 will also be a time for the project to start working out a systematic way for AI practitioners to import semen themselves or with the help of a licensed provider.

ESTABLISHMENT OF ARTIFICIAL INSEMINATION CENTERS

Following the opening of the AI center in Mary, the Project has identified potential partners in the Ahal and Dashoguz velayats. The project is now in the final stages of negotiating an agreement in Ahal and will continue working out the details in Q3. The Ahal partner, Mr. Nepis Karayev, was chosen because his farm is centrally located relatively close to Ashgabat (24km east of the city center), has good access roads, and has available space that only needs basic renovation. Learning from the challenges experienced in Mary, the project plans to use actual farm locations for any future AI training centers.

Under new leadership, Turkmenmallary has expressed interest in creating five new AI/breeding centers across the country. Because of the similar nature of our goals, the project is exploring opportunities to collaborate with Turkmenmallary to meet mutual goals. The project's Agriculture Extension Specialist, Akmyrat Yazhanov, has met with the organization, and they are requested recommendations for building these new centers and procuring the necessary AI equipment to make them operational. More clarity will be reached on the project's collaboration with Turkmenmallary in the coming weeks.

Challenge: The housing of future liquid nitrogen generating equipment remains unclear. Due to licensing restrictions regarding the production and sale of LN, Turkmen laws prohibit the private sector from LN production and distribution. The project is looking into other alternatives, such as housing the equipment at a national laboratory.

FEED DEMONSTRATION

The feed ingredients have been procured in January and February and the feed mix created in March with cooperation from Sha Yoly, a public-private state farm in Ahal, which is considered to be one of the more modern farms in the country. The activity is designed to last three months to illustrate how a healthy, consistent feed will help local dairy cows produce higher quality and quantity of milk than current levels. The project has set aside a control group at Nepis Karayev's farm in Ahal that the AgTech staff can oversee to ensure that results are accurate. A total of 100 cows have been selected for monitoring in Ahal and Mary velayat at this time.



"The number one challenge affecting my clients for artificial insemination is the poor quality of feed."

*-Katya Chichnayeva,
Local AI Specialist &
Trainer*

Participating Farmers and Number of Heads in the Feed Trials

Farm Name	Location	Participating Livestock
Nepis Karayev	Ahal, Ak Buday	40 Brown Swiss mixed; 40 control
Reyimbay Yoldashev	Ahal, Ak Buday	10 Local breed
Sha Yoly	Ahal, Ak Buday	20 Holstein
Bayram Meredov	Mary, Bayram-Aly	20 Local / Red Steppe
Hally Italmazov	Mary, Vekilbazar	10 Local mixed breeds

This activity required over 20 tons of feed to be produced and mixed. The feed consists of 60/40 barley and cottonseed meal ratio, chalk, along with a 4% (1kg added per 25kg of feed) additive mix by

Next Step:

Arrange filming the selected farmers to visually demonstrate results and progress during the three-month feed demonstration. The media will serve as tool to incentive farmers to invest in feed mills to locally produce better quality feed.

the brand Jivina, which is comprised of essential vitamins and trace minerals and locally procured in Ashgabat. The mixing process involved milling the barley, and then using the refined barley to be hand mixed with the cottonseed meal, the Jivina mineral mix and chalk. The feed is then gathered into 35kg sacks and has been distributed to the participating farmers to begin the demonstration by April 1. Results will be available next quarter.

The project is planning to hire a videographer to record video and prepare a small film to promote the activity's impact, educate farmers on the importance of balanced feed rationing, and build demand for investments in a cattle feed production in Turkmenistan.

U.S.-manufactured Mastitis Kits have also been distributed to the participating farmers. This will allow farmers to monitor any disruptions in milk production caused by one of the most common diseases to milking cows. If a cow's teat is infected with mastitis, it severely limits the cow's milking productivity. By conducting weekly tests, incidence of mastitis can be recorded and treated to minimize its potential adverse effect on the feed demonstration.

Challenge: The results of this activity will be very telling in terms of the cost-benefit to small holders of using more expensive mixes as opposed to raw forage alone. The project will have to determine the economic feasibility for farmers to continue such feed practices following the activity's completion. Critical to future success is the establishment of a cattle feed production line, either at an existing mill or with the investment in a new milling facility. To date, millers have not had the demand required to make such a feed production line profitable.

Update: Chevron has allocated \$150,000 in supplemental funding for the 2011 fiscal year, but it has not yet been added to the contract. In early March, USAID received the check from Chevron and in Q3 this money should be processed. Once added to the contract, the project is ready to procure a liquid nitrogen (LN) generator for AI services sustainability.

HORTICULTURE COMPONENT

GREENHOUSE IMPROVEMENT PROGRAM

The AgTech project has contributed resources and support in the construction and/or renovations of 140 greenhouses for better performance in horticulture production, mainly for tomatoes and

cucumbers. After the second quarter of the project's second year, these numbers continue to climb:

- Ahal – 29
- Mary – 56
- Lebap – 53
- Balkan – 1
- Dashoguz - 1



"It is a great honor to own the first greenhouse in our region. We have a high rate of unemployment in Serdar, and the people are all very interested in real job opportunities in greenhouse horticulture."

-Nurmyrat Atayev, Balkan, Serdar Etrap

Next Step:

Install more drip irrigation to provide a safe mechanism for applying fertilizer and a more environmentally sustainable alternative to traditional greenhouse irrigation methods.

The first greenhouse activities focused on Ahal, Mary and Lebap. The project's activities have now expanded to the remaining regions in Balkan and Dashoguz. The project contributed \$4,000 to each demonstration greenhouse project, while the remaining costs were covered by the owners. This meant USAID provided a 39% cost share in the Balkan and a 26% cost share in Dashoguz.

Following the completion of the greenhouse in Balkan, a Grand Opening seminar took place on January 10, 2012, where over 40 men, women and children arrived to see firsthand the new greenhouse and learn about its construction.

It is the project's hope that recently built infrastructure for a more consistent supply of gas and water in the Serdar District of the Balkan will enable new farmers to emerge from an otherwise barren area of the country where local produce costs 25% or more compared to other urban areas of Turkmenistan. It is a local food security issue in that prices far exceed salaries, and hopefully these new farmers will be able to provide more employment opportunities and price stability in the local market.

Similarly, in Dashoguz, the construction required for the more northern climate is different than that required for the Ahal, Mary and Lebap regions. However, many farmers are already involved in horticulture practices, so it is with anticipation that the project will find similar results here compared to the increased production already observed in Mary and Lebap.

The Dashoguz greenhouse was completed in February, and the project held its first seminar on greenhouse construction there on March 15-16, 2012.

HORTICULTURE PRODUCTION & IMPROVEMENT

January through March is a time in Turkmenistan between harvests. Having just completed the fall/winter harvests at the end of Q1, our project stakeholders prepared for their next planting season. This led to a natural transition for soil testing seminars. Our senior local consultant, Ms. Oguljamal Bazarova, has trained our respective velayat trainers to conduct the tests themselves. The project procured an additional two test kits for the Balkan and Dashoguz regions in March, which will be used in Q3 seminars later this year. On January 26, the U.S. Ambassador Robert Patterson and Chevron representative, Mr. Doug Uchikura, briefly visited project sites including a soil test seminar being conducted in Ahal.



The seminars this quarter concentrated on greenhouse construction, plant care, soil care, and climate control for an optimal greenhouse environment. As requested by the participants in Q1, the farmers have also received further information on plant diseases their prevention and treatment techniques. This has come as the project has teamed up with ABEM Trading, Inc., which among other trade activities imports agricultural inputs such as vegetable seeds and bull semen from the Netherlands. Their representative, Mr. Marco de Wolf, who has lifelong experience as a greenhouse agronomist, participated in a question & answer style seminar regarding seeds, plant disease and treatment, and general greenhouse management. The new perspective and information was a welcome addition to the seminar and Mr. de

Next Step:

Meeting with Mission Environmental Officer, Nina Kavetskaya, to implement the PERSUAP and complete all ER Checklists.

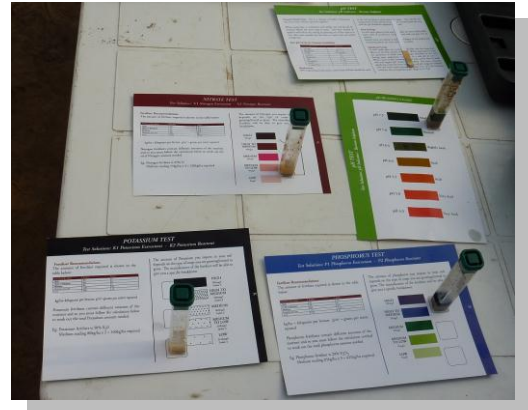
Hire an international and/or local consultant for Q3 seminars on greenhouse pesticides and good agriculture practices.



Photo from the first seminar in Dashoguz in March, 2012

Wolf pledged to provide support as requested by the farmers. The project hopes to continue to work with ABEM, Inc. and other input providers as a way of linking the market to the farmers and spreading new information about cucumber and tomato seed varieties.

The project is continuing to train local input providers and farmers on soil composition for them to calculate and recommend the proper application of fertilizer for optimal plant and fruit growth. Additional soil test kits were brought from the U.S. in March to test stakeholders' greenhouse soil for its pH level, nitrogen, phosphorus, and potassium. When asked about the impact of the soil test kits, Beshim Tanniyev, the project's partner in Mary, explained that they were surprised to find that each greenhouse's soil had variations in alkalinity and nutrient content. The result has been a more specific soil preparations and fertilizer applications for regional farmers that the project hopes will result in greater yields in the spring harvest.



By the end of Q2 in Year 2, 383 new farmers have attended project seminars, with male participants dominating the attendance figures at 83%. The larger male to female attendance ratio is likely attributed to cultural reasons where men are considered responsible for attending such seminars while women take care of the house, family and may even be tending to the greenhouses themselves. Looking forward, the project recognizes that women make up a significant part of the greenhouse workforce among small holder farmers that the project is targeting. To make sure that equal opportunity is given to women in both receiving technical information and asking questions from trainers, the project is considering inviting women for their own seminars where cultural pressures to remain more tacit in public can be overcome.

Following the project's PERSUAP approval, AgTech intends to bring in a short-term international specialist who can design and develop pest control and fertilizer training modules and perform training sessions in all five velayats. The consultancy was originally scheduled for March 2012. However, due to a delay in approving the STTA, AgTech, had to delay the STTAs arrival and as preliminary work produced AgTech EMMP indicators and MSDS for each chemical used, providing information on safe storage, disposal, safety procedures and safety equipment needed, acute and chronic toxicity issues, poisoning symptoms and first aid/antidotes for poisoning.

Challenge: The project and its foreign partners continue to have challenges with getting visas for horticulture professionals to come to Turkmenistan. This is creating a tenuous situation where the project must rely upon local specialists who, although excellent agronomists, are less likely to know the international standards and good agriculture practices that the project would like to transfer to local farmers to help them achieve export-quality produce.

POMEGRANATE DEVELOPMENT PROGRAM

The project combined a trip to see the new Balkan greenhouse in January with a follow-up trip to the Balkan region along the Somba River where pomegranates make up one of the primary agriculture crops. The project met with the local head of the Water Utility, Mr. Akhmed Hajygylyjev,

who was willing to be the organizer for the project-funded activity to improve the water pumps that provide irrigation in the dry summer months to 143 hectares of pomegranate orchards. This initiative would provide support to a group of 27 farmers.

Challenge: The goal was to use project grant funding to support this activity. Because the pumps are owned by the Government of Turkmenistan, the project was required to submit a request to move forward with the funding to this group of farmers for the purpose of improving the local water and irrigation infrastructure. The project has not yet received a positive or negative reply, but it is clear that these bureaucratic delays mean that the project will have to wait until Project Year 3 to have an impact on this region.

EXPORT DEVELOPMENT STUDY

In late March, the project commissioned a report on Export Capacity and Trade for Turkmen Horticulture focusing on cucumbers and tomatoes. A local firm, MCT Agency, specializes in market research and is conducting surveys in all the velayats. They will provide analysis of the status of the horticulture industry in Turkmenistan and the readiness of Turkmen farmers to begin and/or increase trade to regional neighbors like Russia and Kazakhstan. This report will include a trade map illustrating product flows in Turkmenistan from the farms to the markets. The project expects the activity to take about two months and will be completed in Q3 of Year 2. The results and recommendations in the report will give the project a clearer picture of what interventions and activities to plan for the horticulture sector in the project's final two years.



Photo: Zulya Achilova

PMP TARGETS AND DEVIATIONS:

Performance Indicator Monitoring

Performance Indicator	Performance Indicator Definition	Year 2 Proposed	Year 2 Actual (second quarter)
50% increase in HH income	<i>Horticulture HHs and farms increasing income by 50%</i>	250	13
	<i>Livestock HHs and farms increasing their income by 50%</i>	250	--
Rural HHs benefiting directly from USG Interventions	<i>Number of beneficiaries and training participants, disaggregated by gender and region</i>	1000	594
Farmers, processors and others who have adopted new technologies or management practices	<i>Number of beneficiaries and training participants using new technologies or practices as introduced by the project, disaggregated by gender and region</i>	500	416
Quantity of produce grown and/or sold	<i>Farmers, buyers or labs are using AI, improved feed, vet services, greenhouses, drip irrigation, grading, post-harvest packaging practices training</i>	Baseline + 70 %	Baseline + 6%
Value of produce sold to local and international markets	<i>USD value of goods in livestock and horticulture sector disaggregated by product and velayat</i>	Baseline + 20%	Baseline + 6%
Number of agriculture-related firms benefiting directly from USG supported interventions.	<i>Number of input providers and buyers strengthened to provide farmers with necessary inputs.</i>	50	17
Number of greenhouses constructed or improved	<i>Number greenhouses constructed and/or renovated in each velayat</i>	100	70
Land under improved technologies or management practices	<i>Indicates the number of ha under greenhouse or livestock project activities (existing and new land).</i>	500	14.5

Number of Training Participants in Q2 of Year 2 (Disaggregated by gender and region)

Region	Female	Male	Total Year 2	Total Project To Date
Ahal	10	83	93	488
Mary	42	144	186	421
Lebap	40	146	186	395
Balkan	28	60	88	92
Dashoguz	0	41	41	49
	120	474	594	1445

Number of Greenhouses Constructed and/or Renovated in Each Velayat through Q2

Region	Number of constructed and reconstructed greenhouses	Total Project To Date
Ahal	17	29
Mary	14	56
Lebap	37	53
Balkan	1	1
Dashoguz	1	1
	70	140

Farmer Households in All Velayats Adopting New Technologies or Practices

Region	HHs in Year 2	Total Project To Date
Ahal	145	443
Mary	166	219
Dashoguz	90	70
Lebap	14	14
Balkan	1	0
	416	816

Total Successful Births from Artificial Insemination (as of March 31, 2012)¹

Calves	Heads
Holstein male	16
Holstein female	17
Swiss male	25
Swiss female	18
Stillborn	9
Aborted	2
Other (pregnant cow overate and died)	1
Total Successful Births:	76

¹ 253 cows remain pregnant from the first year's artificial insemination activities.